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Marketing a Panic: Media Coverage of Novel Psychoactive Drugs (NPDs) and its Relationship with Legal Changes

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Abstract Recent social and legal responses to novel psychoactive drugs (NPDs) have been attributed to media panics rather than these substance's actual harms. NPDs, including botanical substances new to Western markets such as *Salvia divinorum*, newly synthesized analogues such as synthetic cannabinoids and "bath salts," and new ways of administering drugs, such as combining prescription cough syrup with soda ("purple drank") have been the target of various forms of legislation at the state and/or federal level. We systematically examine print media coverage of NPDs in the U. S. between 2005 and 2013 to determine whether media attention was temporally associated with legislative change. Results indicate that each drug had a brief window during which it was the focus of sensationalistic reporting. In addition, federal legislation banning synthetic cannabinoids and "bath salts" appear to be closely linked to media reporting as spikes in coverage both preceded and followed the bans.

Keywords Novel psychoactive drugs · Media panic · Federal drug regulation · Synthetic drugs

Introduction

Media headlines such as "Shooting Suspect Had Been Known to Use Potent, and Legal, Hallucinogen" (Sulzberger & Medina, 2011), "13-Year Old Boy Hallucinates, Taken to Hospital After Using Synthetic Marijuana" (Gonzalez, 2014), "'Zombie'

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Drug Bath Salts More Potent Than Meth, Study Finds" (Mohan, 2013), and "What's 'Sizzurp'? A Dangerous Way for Kids to Get High" (Rossen & Davis, 2014), are becoming increasingly commonplace, particularly in U.S. media outlets. After a Florida man, Rudy Eugene, was purported to be on the novel psychoactive drug (NPD) "bath salts" when he attempted to eat a homeless man's nose, mouth, and eyes (Dahl, 2012), public concern about the dangers posed by the drug skyrocketed despite later evidence that the mentally ill perpetrator had not, in fact, ingested "bath salts" prior to the attack. As media coverage can influence public opinion, particularly regarding high-profile events (Boomgaarden & de Vreeese, 2007), it is imperative to examine how the media portrays a topic as potentially sensational as novel psychoactive drugs. Furthermore, there is potential for the quantity and tone of related media coverage to influence legislation surrounding these substances more so than the substances' apparent use and potential intrinsic harms. Currently, no study has systematically summarized media coverage of NPDs nor does any extant work evaluate the connection between NPD media coverage and legislation. The present study examines these issues.

Historically, the media has associated novel psychoactive drugs (NPDs) such as *Salvia divinorum*, synthetic cannabinoids (also known as "spice" or "K2"), MDPV and synthetic cathinones (known as "bath salts"), and "purple drank" (also known as "sizzurp," or "lean") with deviant behaviors, widespread use, health concerns, and death (Leineweber, 2011). Following increased attention, legislation has been passed to regulate and limit the availability of these substances (Rickert, 2011, 2012; Elbow, 2010; Hofmockel, 2008). However, information may be misrepresented or exaggerated by the media fueling minor drug panics and deceiving the public of the true dangers of these substances. Portrayal of events such as cannibalism and other extreme and bizarre acts that have been directly attributed to novel psychoactive drugs create fear among readers, potentially fueling moral panics. Moral panics are more than just exaggerations perpetrated by the media – they utilize hyperbolic language to demonize an activity such as novel drug use by characterizing the users of these substances as deviant (Goode & Ben Yehuda, 1994). Unfortunately, the print media's portrayal of events associated with novel substances that are false, distorted, or exaggerated may overshadow and deflect attention away from the very real health concern that they pose (Stogner & Miller, 2013).

The purpose of this study is to explore the representation of NPDs in print media in the United States. We employ a content analysis of a representative sample of print media articles published between January 1, 2005 and July 1, 2013 in 26 major news outlets across the nation. Specifically, we examine the coverage of *Salvia divinorum,* synthetic cannabinoids, bath salts, and purple drank over time, while evaluating the main foci of the articles, the implied association between NPD use and specific demographic groups (including celebrities), and the association of NPDs with bizarre and deviant behavior. Utilizing the moral panic framework, we examine the connection between coverage of these NPDs and changes in the legal status of the drugs.

Drug Problems and Moral Panics

Drug panics are hardly a new phenomenon. The idea of a drug "epidemic" or the insinuation of widespread use as new drugs come to the market is a common theme throughout the history of drug discovery. The reported threats of excessive NPD use seem quite consistent with the pattern of drug scares that can be traced back for over a century (Alexandrescu, 2013; Khey, Stogner, & Miller, 2014). Historically, many new drugs were once purported to have a great potential for legitimate medical uses, but subsequent abuse and associations with deviant user groups led to public outcry and stringent regulations (DeGrandpre, 2006; Spillane, 2000). Ronald Akers has termed this common occurrence of new drug scares perpetuated by the media as the "scary drug of the year" phenomenon. Akers (1992) states, "We have seen drug scares come and go; epidemics develop, peak, and decline with few of the horrors predicted coming true" (p. 42). One reason why novel drugs may be so susceptible to media exaggerations can largely be attributed to our unfamiliarity with these substances. Those substances that are foreign to us are easily demonized as little is known about the actual effects, or users, of these substances. This becomes extremely problematic as Akers points out, "Often there is real, substantive basis for the alarm, even though it may get exaggerated or distorted" (Akers, 1992, p. 42). In other words, through media panics, the real harms of these substances may be overlooked or masked by hyperbole.

The moral panic framework has a long and vast tradition in explaining societal concerns including gangs (Jackson, 1993), youth violence (Welch, Price, & Yankey, 2002), and of direct relevance- drug use (Armstrong, 2007; Baldwin, Miller, Stogner, & Hach, 2012; Cornwell & Linders, 2002; Denham, 2008; Hawdon, 2001; Hier, 2002, 2008; Hill, 2003; Goode, 2008; Linneman, 2010; Nielsen & Bonn, 2008; Omori, 2013; Weidner, 2009; Weiss & Colyer, 2010; Young, 2011). A moral panic as described by Stanley Cohen is a "condition, episode, person or group of people who emerge to become defined as a threat to societal values and interest, which their nature is presented in a stylized and stereotypical fashion by the mass media" (Cohen, 2004:1). One of the defining features of a moral panic is the creation of a "folk devil" or the demonizing of groups engaged in certain behaviors (Cohen, 2004). Some scholars refer to moral panics as socially constructed fears which are designed to shield the public from other threats that may not be manageable or convenient (Glassner, 1999). Goode and Ben Yehuda (1994) provide a framework to determine if a societal concern fits the definition of a moral panic, which includes five key elements: concern, conduct, consensus, hostility, and volatility. There must be a general anxiety (*concern*) regarding an action (*conduct*) about which a "broad and unified" *consensus* is formed, wherein perpetrators are viewed with *hostility*, and *volatility* in media reporting follows suddenly (Goode & Ben Yehuda, 1994).

Moral panics vary in intensity, duration, and impact (Garland, 2008). In the last decade, such panics have appeared more frequently in news formats that benefit from fear and entertainment, especially in the case of sex and drugs since they encourage oppositional positions (Altheide, 2009). Modern technology and increased access to instantaneous media coverage may now facilitate moral panics which grow, and eventually dissipate via replacement, faster than those just a few years earlier. Print media is also particularly well suited for generating moral panics in their use of editorials and op-eds (Altheide, 2009). With increased social pressures to protect youth from potential harms, NPDs are highly susceptible to moral panics given their initial availability, lack of research, and foreign nature.

Novel Psychoactive Drugs

Substances which have recently come into the marketplace were initially sold in legal or gray markets (Khey et al., 2014). These substances are sometimes referred to as "legal highs" by the media, law enforcement, and academic research (see Arunotayanun & Gibbons, 2012; Brandt, Sumnall, Measham, & Cole, 2010; Davies et al., 2010). This terminology proves problematic as though regulations may be lacking at the time of the initial introduction of these substances to market, they are sometimes soon prohibited at the state and/or federal level (see Corazza et al., 2013). However, young adults familiar with this moniker often continue to believe the substance is legal for some time after its ban (Singleton, Stogner, & Miller, 2014). Other terms often used to describe these type of substances are "Synthetic Legal Intoxicating Drugs (SLIDs)," "designer drugs," or "synthetic drugs" (Jerry, Collins, & Streem, 2012; Vardakou, Pistos, & Spiliopoulou, 2011). Although these terms avoid the legal issue, they only describe a subset of substances which are synthetic, and do not include natural substances which have only recently been brought to the legal and gray markets (such as *Salvia divinorum* or kratom). More appropriate and inclusive terminology includes "novel psychoactive drugs" (Corazza et al., 2013), "novel drugs" (Miller, Boman, & Stogner, 2013), or "emerging drugs" (Khey et al., 2014). Using Corazza et al.'s (2013) NPD definition, we explore print media representations of the more inclusive group of these substances that are either newly discovered (or synthesized), existing drugs that have only recently been used for recreational purposes, and new or innovative methods of administering a drug.

Khey et al. (2014) divide NPDs into three main categories: new to Western market botanicals (e.g. *Salvia divinorum*, kratom, and ephedra); newly synthesized analogues (e.g. bath salts and synthetic cannabinoids); and innovative methods of administering drugs (e.g. vodka tampons, purple drank, and marijuana "dabbing"). Non-conventional methods allow for traditional drugs such as alcohol or codeine cough syrup to also be placed in the novel category; for example, utilizing a vaporizer or nebulizer-type of device to inhale alcohol, or mixing soda and/or alcohol with prescription medicines such as codeine promethazine hydrochloride cough syrup (i.e., Peters et al., 2003). Thus, one of the common themes surrounding NPD use is constant innovation. As policymakers attempt to regulate some of these substances, underground chemists can make slight alterations to the molecular structure of recently banned substances in order to bypass regulations (Baumann, 2011). Although we searched print media for a large list of NPDs, we focus our analysis on the four most commonly cited NPDs in the print media during our 8 year search window: *Salvia divinorum*, synthetic cannabinoids, bath salts, and purple drank.

Salvia

Salvia divinorum is a naturally occurring plant in the Oaxaca region of Mexico where it has a long history of ceremonial, religious, and medical uses by the Shamans of the indigenous people of the region (Khey, Miller, & Griffin, 2008), and is known for its dissociative and hallucinogenic properties. When smoked, the plant produces a short-lived (but very intense) high (Prisinzano, 2005). In the United States, salvia is commonly smoked similarly to marijuana by using a pipe or bong as opposed to the traditional chewing of leaves or grinding leaves into a liquid tea mixture (Wasson, 1962; Khey et al., 2008). Recreational use of salvia in the United States appears to have first started in the late 1990s (Ford, Watkins, & Blumenstein, 2011; Khey et al., 2008; Lange, Reed, Croff, & Clapp, 2008; Miller et al., 2011; Miller, Griffin, Gibson, & Khey, 2009). Prior to 2003, salvia use was considered to be “rare and sporadic” (Khey et al., 2014, p. 55). In 2003, the Drug Enforcement Administration (DEA) labeled salvia as a “drug of concern,” but did not utilize their emergency scheduling powers to federally regulate the plant (see Griffin, Miller, & Khey, 2008).

Major media coverage of salvia first started in the mid-2000s and largely focused on the marketing of salvia as a “legal high” (Khey et al., 2014). Several high profile media events elevated salvia from a little known (and infrequently used) substance to the national spotlight. On January 23, 2006 a Delaware teen, Brett Chidester committed suicide (Griffin et al., 2008). Although there is controversy over what role (if any) salvia played in the teen’s death (see Griffin et al., 2008), the drug soon became the focus of legislators in the state when it was listed as a contributing factor on autopsy reports. Only a few months after the tragic suicide, Delaware passed “Brett’s Law,” banning the use of salvia in the state (Griffin et al., 2008). Other high-profile media events include a leaked video of actress and musician Miley Cyrus smoking salvia from a bong (11/28/2010) and reports that Jared Loughner (the man accused of shooting Congresswoman Gabrielle Giffords and killing six people in Tucson, Arizona on January 8, 2011) used salvia (Stogner, Khey, Griffin, Miller, & Boman, 2012). Although the Federal government has not regulated salvia, 34 states have passed various forms of legislation including the addition of salvia to states’ controlled substance acts, passing separate legislation to ban the substance, or placing age restrictions to purchase and/or possess the drug (see Griffin et al., 2008).

Synthetic Cannabinoids

Synthetic cannabinoids first appeared in Europe in the early 2000s and were soon marketed in the United States (Stogner & Miller, 2014). Marketed as “legal highs” or “herbal highs,” these incense blends were promoted as producing effects similar to marijuana (Lindigkeit et al., 2009; McLachlan, 2009; Zimmermann et al., 2009). Although there have been many products sold that make similar claims, what separated these products from others is that they contained natural plant material along with some blend of synthetic cannabinoids (i.e. JWH-018, JWH-073, JWH-200, CP-47 497, and/or CP 497 C8 homologue) that produce a high similar to marijuana (Stogner & Miller, 2014).

Marketed under a wide array of names, the most popular brands to initially emerge were “Spice” (a reference to the 1965 science fiction classic *Dune*) and “K2” (a reference to the second highest mountain, Mount Godwin-Austen). These products, when smoked, produce effects similar to marijuana such as euphoria, increased sociability, relaxation, increased appetite, and sometimes anxiety and paranoia (Castellanos, Singh, Thornton, Avila, & Moreno, 2011). Labeled “not for human consumption” and marketed as “incense,” these substances were initially able to bypass federal regulations. These products became popular due to their (initial) legal status, but became especially popular because of their ability to avoid detection in urine drug screens (Hu, Primack, Barnett, & Cook, 2011) among military personnel and probationers (Vardakou et al., 2011).

Starting in 2009, the United States Military passed several policies banning the use of synthetic cannabinoids (Stogner & Miller, 2014). Following the military, Kansas was the first state to pass legislation banning these products in early 2010. Several other states passed legislation prior to the DEA utilizing emergency scheduling in March of 2011 to place the five most common synthetic cannabinoids (those contained in the Spice and K2 brands) into Schedule I of the Controlled Substance Act (Stogner & Miller, 2014). Following this ban, those who manufactured second-generation synthetic cannabinoids attempted to bypass regulations by altering their chemical makeup. To counter this, on July 9th, 2012 the Synthetic Drug Abuse Act was signed into law banning "any substance that is a cannabinoid receptor 1 (CB1 receptor) agonist" (Food and Drug Safety and Innovation Act, 2012).

Much of the early media attention on synthetic cannabinoids focused on its legal availability online and at head shops. An incident involving the award-winning actress Demi Moore made national headlines as she was hospitalized for convulsions attributed to smoking synthetic cannabinoids (Khey et al., 2014). Following this incident, increased media and policy attention was placed on these substances warning of the "wild dangers" they posed (Dillon, 2012).

Bath Salts

The term bath salts has been used to refer to a diverse group of synthetic stimulants marketed to recreational drug users (Khey et al., 2014). Most often in the United States, the substances contained in these products were MDPV (3,4-Methylenedioxypyrovalerone) and synthetic cathinones (Spiller, Ryan, Weston, & Jansen, 2011; Stogner & Miller, 2013). In a ploy to bypass drug regulations, these synthetic analogues were marketed as "bath salts," "insect repellant," "plant food," or "ladybug attractant" and were often labeled "not for human consumption." Although some early media reports indicated that someone could accidentally get hold of these drugs while attempting to get a relaxing product for a bath, these reports were largely unrealistic (Khey et al., 2014). These products were sold at gas stations, convenience stores, tattoo parlors, truck stops, tobacco stores, and over the Internet at much higher prices than one would expect for bathing aids (J. A. Fass, A. D. Fass, & Garcia, 2012). Additionally, they were sold under names indicating their stimulant effects such as "Hurricane Charlie," "Spark," and "Scarface" (Khey et al., 2014).

Most of the substances sold as bath salts contained one or more compounds intended to mimic the effects of cathinone, an amphetamine analogue found in the khat (*Catha edulis*) plant. There appears to be a great deal of variability in the chemical composition of bath salts, particularly internationally. However, MDPV, mephedrone, methylone, 4-Methoxymethcathinone, and 4-Fluoromethcathinone appear to be the most common active ingredients (Spiller et al., 2011). The most common form of administration is nasal insufflation (inhalation), but there have also been reports of intravenous injection and ingestion (Khey et al., 2014). The effects of the drug appear to be similar to that of cocaine, amphetamines, and methamphetamines; in many cases they were marketed as "legal" alternatives to these substances.

Similar to synthetic cannabinoids, bath salts were first regulated at the state level. In the fall of 2011, the DEA utilized their emergency scheduling powers to ban MDPV, mephedrone, and methylone. As part of the Synthetic Drug Abuse Act of 2012, MDPV and all synthetic cathinones were added as Schedule I substances to the Controlled Substances Act (Food and Drug Safety and Innovation Act, 2012). Leading up to the ban on bath salts, several news stories associated the drug with bizarre, deviant, and criminal acts (Schaller, 2013). As noted by Khey and colleagues (2014), many of these news stories appeared during a short timeframe including a story about a soldier who killed his 5-year-old son and wife, led police on a high speed chase, and took his own life; a man arrested in women's lingerie with a goat that he had allegedly raped and killed; and a man who attempted to perform surgery on himself all attributed to being under the influence of bath salts.

Purple Drank

Purple drank is one of several terms for a mixture of prescription codeine promethazine hydrochloride cough syrup (CPHCS) with soda (typically Sprite) and/or alcohol, in addition to the occasional hard candy (such as Jolly Ranchers) for flavor (Elwood, 2001; Hart, Agnich, Stogner, & Miller, 2014; Peters et al., 2007). The concoction is also known as "lean," "sizzurp," "syrup," or "barre." In some cases, users without access to the prescription cough syrup substitute over-the-counter cough syrup, although the physiological effects differ substantially. Whereas CPHCS is a depressant, OTC cough syrup contains dextromethorphan, which becomes a powerful hallucinogen when misused (Furek, 2008; Lessenger & Feinberg, 2008; Schwartz, 2005). Abuse of CPHCS has been linked to deafness (Blakley & Schilling, 2008), delinquent behavior (Peters et al., 2007), the use of other drugs (Peters et al., 2003), and death (Gerostamoulos, Burke, & Drummer, 1996).

Purple drank appears to have grown out of the Houston, Texas rap/hip-hop music scene. The concoction is often associated with what is known as "screw music" pioneered by DJ Screw (see Patel, 2007). This style of music utilizes slowed-down beats designed to mimic the effects of being under the influence of purple drank. Rap music that has been edited in this way is then referred to as "chopped and screwed." In November of 2000, DJ Screw, a noted advocate and avid user of purple drank, died from a codeine overdose (Hart et al., 2014). Other notable deaths related to purple drank abuse include DJ Screw's protégé Big Moe and Texas rap artist Pimp C (Hart et al., 2014). Though purple drank has a long history in the Texas area, it only emerged on the national scene in the last decade.

Along with purple drank's association with southern rap music, much of the media attention devoted to the substance has to do with its use among professional athletes. In 2008, former Green Bay Packer Johnny Jolly was arrested for possession of codeine with allegations of his use of purple drank. Following this incident in 2010, former quarterback and top draft pick for the Oakland Raiders, JaMarcus Russell, was arrested for possession of codeine, bringing national attention to the problem of purple drank (Agnich, Stogner, Miller & Marcum, 2013).

Framing of Novel Drugs in the Media and Legal Changes

There have been several high profile media events involving NPDs including celebrity use, arrests, overdoses, suicides, deaths, murders, and cannibalism. Figure 1 visually

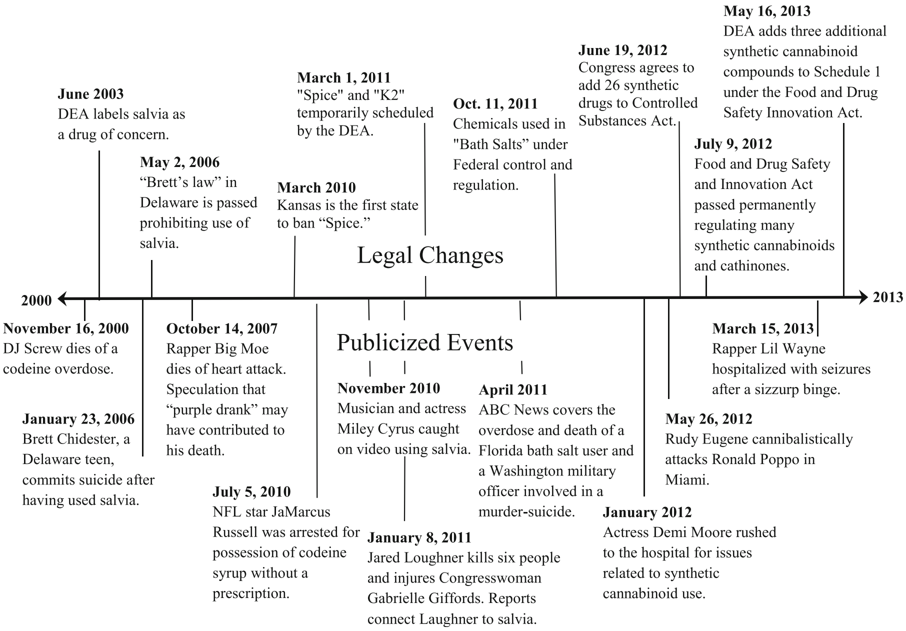
Legal Changes
Publicized Events
2000
2013
June 2003
DEA labels salvia as a drug of concern.
May 2, 2006
"Brett's law" in Delaware is passed prohibiting use of salvia.
March 2010
Kansas is the first state to ban "Spice."
March 1, 2011
"Spice" and "K2" temporarily scheduled by the DEA.
Oct. 11, 2011
Chemicals used in "Bath Salts" under Federal control and regulation.
June 19, 2012
Congress agrees to add 26 synthetic drugs to Controlled Substances Act.
July 9, 2012
Food and Drug Safety and Innovation Act passed permanently regulating many synthetic cannabinoids and cathinones.
May 16, 2013
DEA adds three additional synthetic cannabinoid compounds to Schedule 1 under the Food and Drug Safety Innovation Act.
November 16, 2000
DJ Screw dies of a codeine overdose.
January 23, 2006
Brett Chidester, a Delaware teen, commits suicide after having used salvia.
October 14, 2007
Rapper Big Moe dies of heart attack. Speculation that "purple drank" may have contributed to his death.
July 5, 2010
NFL star JaMarcus Russell was arrested for possession of codeine syrup without a prescription.
November 2010
Musician and actress Miley Cyrus caught on video using salvia.
January 8, 2011
Jared Loughner kills six people and injures Congresswoman Gabrielle Giffords. Reports connect Laughner to salvia.
April 2011
ABC News covers the overdose and death of a Florida bath salt user and a Washington military officer involved in a murder-suicide.
January 2012
Actress Demi Moore rushed to the hospital for issues related to synthetic cannabinoid use.
May 26, 2012
Rudy Eugene cannibalistically attacks Ronald Poppo in Miami.
March 15, 2013
Rapper Lil Wayne hospitalized with seizures after a sizzurp binge.

Fig. 1 Timeline of well-publicized stories connected to novel drugs and relevant legal changes (not to scale)

depicts the timing of highly publicized events linked (whether accurately or inaccurately) to NPDs, and changes to the legal status of these substances. This timeline, not drawn to scale, demonstrates that regulation of some NPDs appears to be linked to events that caught public attention. For example, *Salvia divinorum* was regulated by Delaware immediately after the tragic death of local teenager Brett Chidester was (questionably) linked to salvia. Likewise, the Synthetic Drug Abuse Act of 2012 was passed soon after Rudy Eugene's cannibalistic attack was (falsely) attributed to bath salts (Food and Drug Safety and Innovation Act, 2012). The figure also demonstrates that some novel substances avoid federal regulation for longer than others even after receiving negative publicity.

In order to better understand the phenomena of novel drugs this study systematically evaluates the print media's coverage of these substances. The goals of this research are to 1) explore the extent and focus of NPDs in the print media including the demographic groups associated with their use; 2) examine the association of NPDs with bizarre and deviant behavior; and 3) evaluate the print media coverage utilizing the moral panic framework, and the effects on legislation.

Methodology

In order to assess print media coverage of novel drugs, twenty of the fifty newspapers with the largest number of U.S. subscriptions were randomly sampled. This random selection process was utilized rather than simply selecting the papers with the highest readership to avoid limiting the sample primarily to the northeast and west coast. Five additional papers were included so that all major markets were represented. These 25 newspapers are published in 13 states and received by nearly 11 million total daily subscribers. Associated Press articles were also included. This yielded a total sample of 26 different print media sources. Due to the focus on recent NPDs, only articles published between to January 1, 2005 (prior to popular use of the *Salvia divinorum*) and July 1, 2013 (when the analysis began) were included.

A team of five researchers searched 21 of the aforementioned outlets using LexisNexis' online database with 40 search terms. Other online databases were used for the five papers not available for the entire 8 year period of interest through LexisNexis at the study institution. Six search terms were utilized for *Salvia divinorum,* seven for synthetic cannabinoids, 12 for bath salts, four for purple drank, three for innovative forms of alcohol use, and 12 were used for other potentially emerging drugs.[1] Any article, crime report, or editorial containing one of the search terms was collected and filed. After articles were collected, the research team reviewed each article and excluded any article that clearly did not refer to a psychoactive drug (e.g. gardening articles referencing ornamental species in the *Salvia* genus, health articles discussing bath salts intended for bathing, etc.). Also excluded were replicate articles whether due to different regional issues of the same newspaper or the reprinting of an Associated Press story.

In total, 715 unique articles referred to NPDs and thus met the inclusion criteria. Of these, 7 % were related to *Salvia divinorum*, 46 % to synthetic cannabinoids, 33 % to bath salts, 13 % to purple drank, and 8 % to other less commonly used novel drugs (the total percentage exceeds 100 % due to 7 % mentioning multiple drugs). Our analysis focuses on the four most commonly covered NPDs (*Salvia divinorum,* synthetic cannabinoids, bath salts, and purple drank). After piloting a proposed coding scheme, these 715 articles were then divided among the research team with approximately one-quarter being assigned to multiple individuals. Each of the five coders was responsible for coding 190 to 200 articles and scored the articles' primary, secondary, and tertiary foci[2]; whether they linked use to certain demographic groups, communities, or lifestyles; if they included blatant inaccuracies, health information, or dramatic language; and a variety of other features of the content of the articles. Among the articles coded by multiple individuals (24.6 %), the scores were identical for 5,169 of the 6,012 total overlapping items (86.0 %). Each of the ten binary pairings of the five coders matched identically on at least 83.5 % of items. In the case of disagreements, one of the other three coders evaluated the article and determined a final score for the disputed item(s).

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[1] Search terms included: Salvia, *Salvia divinorum*, Salvinorin A, Sally D, Magic Mint, Purple Sticky, Spice, K2, Mr. Miyagi, Synthetic cannabinoids, Synthetic cannabis, Synthetic marijuana, Cannabimimetic agents, Bath Salts, Plant Food, Synthetic Cathinone, Synthetic Cathinones, MDPV, Methylenedioxypyrovalerone, Mephedrone, Methylone, Naphyrone, Ivory Wave, Vanilla Sky, Hurricane Charlie, Purple Drank, Codeine Cough Syrup, Sizzurp, Promethazine, TFMPP, Trifluoromethylphenylpiperazine, Kratom, Mitragyna speciosa, Ketum, Kakuam, Ithang, Thom, Butt Chugging, Vodka Tampon, Alcohol Vaporizer.

[2] Coders selected from eight focus categories that were agreed upon after piloting and evaluating an initial codebook (dangers or dangerousness [health consequences, dependence, accidents, etc.], the spread of use [terms such as epidemic, spread, or growing issue used], a user profile [who's using it], legal availability or other legal issues, crimes related to the drug, law enforcement efforts, deviant/sexual behavior, and manufacturing/trade [who's making the drug and profiting]). Though coders were required to indicate a primary focus, they could choose to omit the secondary and tertiary focus items if the article only focused on one (or two) of these issues.

Results

Overall Media Coverage

Figure 2 displays the print media coverage of novel drugs from January 2005 to July 2013 over 4 month intervals. As data collection ceased July 1, 2013, only two intervals are presented for 2013; the number of articles in the final interval was adjusted (doubled) to account for that interval being only 2 months long. Within the selected 26 newspaper sources, coverage of NPDs remained low until early 2010. The handful of publications between 2005 and early 2010 either focused on *Salvia divinorum* or purple drank. Attention to these two drugs remained stable throughout the entire study period, but total novel drug coverage rapidly increased in late 2010 due to the emergence of synthetic cannabinoids and bath salts. Reports of synthetic cannabinoids and bath salts took off in 2010 until beginning a gradual decrease in 2013. Overall coverage, largely dedicated to bath salts and synthetic cannabinoids, peaked both in the initial months of 2011 and in the summer of 2012. A sizable decrease in media attention, particularly towards synthetic cannabinoids, can be seen in the last 8 months of 2011.

Figure 3 displays overall media coverage by region and substance. Coverage is divided into four regions: the Northeast, Midwest, South, West, along with nationally distributed newspapers. The highest concentration of media coverage overall appears to be in the Midwest (276 total articles), followed closely by the Northeast (207 total articles). Newspapers within the study which published the most articles about novel drugs include the St. Louis Post-Dispatch, the St. Paul Pioneer Press and the Star Tribune (Minneapolis). For almost all newspapers, the most covered substance was synthetic cannabinoids followed by bath salts, except for the San Jose Mercury News which covered purple drank in 47.5 % of their articles regarding novel drugs.

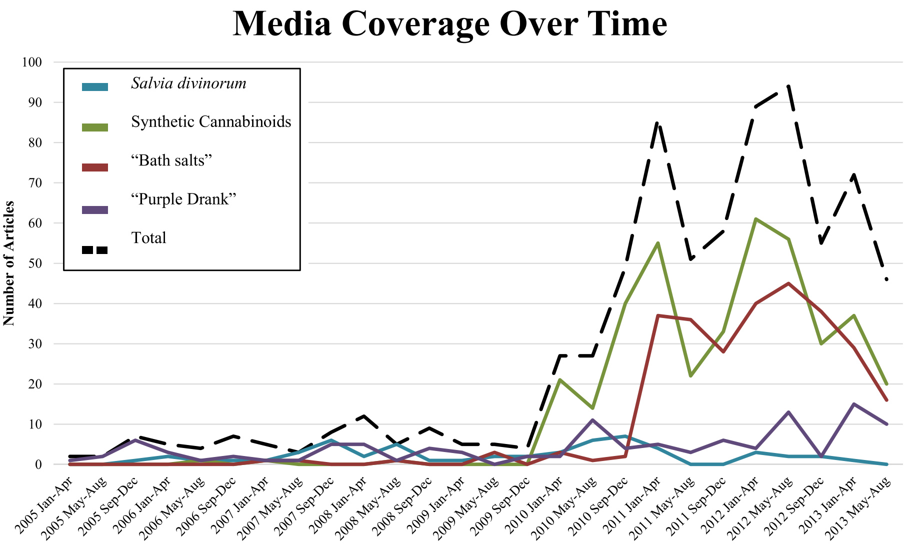

Fig. 2 Media coverage devoted to novel drug use (in total number of articles) over time

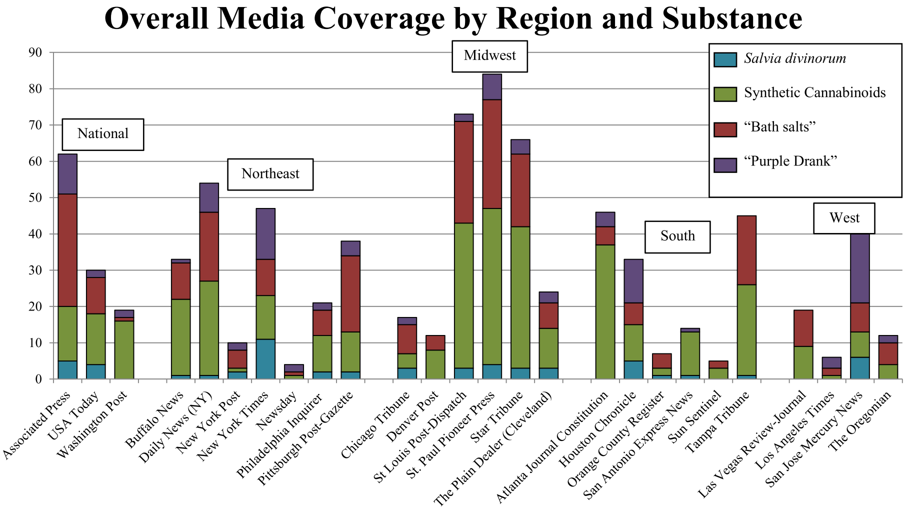

Fig. 3 Number of novel drug articles by region and substance

Focus of Articles

A breakdown of the articles’ main foci is displayed in Fig. 4. During coding, research assistants were able to record up to three topical foci for each article and, if the article had two or three recorded foci, rank order them in terms of the articles’ content. The figure displays the percentage of articles about each of the four most commonly

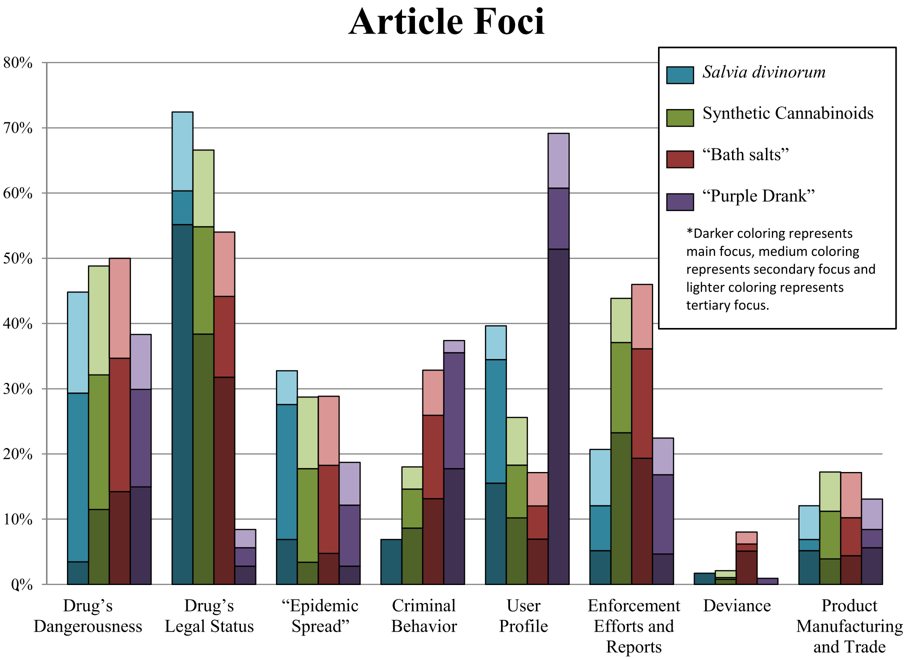

Fig. 4 Percentage of novel drug articles that primarily, secondarily, or tertiary focuses on certain topics

described drugs that focus on each topic. The bars are further divided to depict the percentage that report the topic as the primary (darker / solid color), secondary (lighter / dotted), and tertiary (lightest / checkered) focus. Overall, the most frequently addressed issue (summation of primary, secondary, and tertiary foci) within the newspaper articles was the drugs' legal status. This was also the dominant primary focus. Drugs' dangerousness was the next most common focus, being evenly distributed for primary, secondary and tertiary focus. Concern over rapid spread or "epidemic" use of the drug was also a common trend within the selected articles, though it was more often a secondary or tertiary focus than a primary one. The topical focus of articles is largely similar for the four drugs. As would be expected, descriptions of law enforcement efforts/ arrest reports were almost twice as common for synthetic cannabinoids and bath salts which became federally illegal during the study's timeframe as compared to *Salvia divinorum* which remains legal in some states and purple drank whose main psychoactive ingredient, codeine promethazine hydrochloride cough syrup, has a legitimate medical use. A key difference between drugs is noted in the user profile category. For articles on purple drank, a demographic profile of users was the most commonly addressed subject. Whereas the primary focus of over half of the purple drank articles was linking use to a particular group (often young Black males, athletes, or musicians), the characteristics of users of the other three drugs (young Whites) was the primary focus of less than one in every six articles.

Media Association of Novel Drug Use with Specific Groups and Behaviors

Figure 5 displays the media's association of novel drug use with specific groups. Within the media coverage of each novel drug, use was highly associated with adolescents (13–17), young adults (18–25), and, to a lesser degree, children (12 and under). Articles addressing *Salvia divinorum* were most likely to associate use with particular age groups, followed by synthetic cannabinoids. Bath salts and purple drank articles were much less likely to link use to any particular age group. Overall novel drug use was associated with males more often than females in the media reports, and

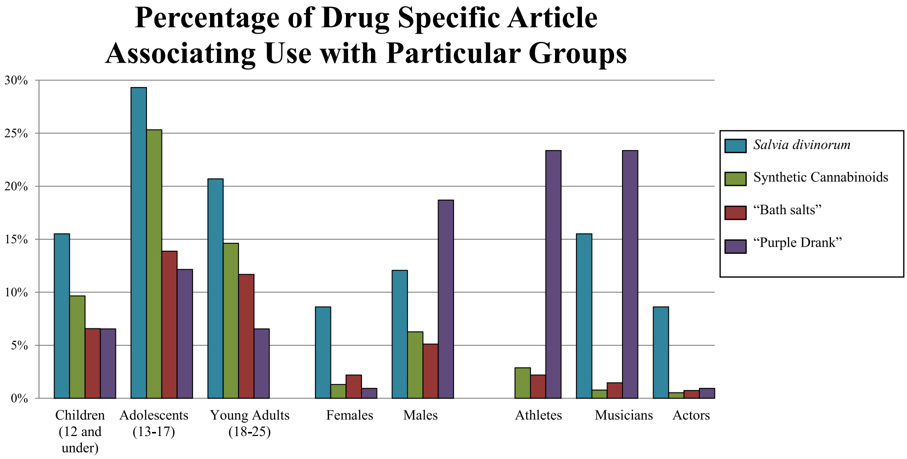

Fig. 5 Association of novel drug use with demographic groups in newspaper articles

this was especially evident for purple drank. Media reports of purple drank use were also highly associated with both musicians and athletes; nearly a quarter of those articles tied use to each of these groups.

The media's association of novel drug use with deviant behavior is displayed in Fig. 6. This illustration depicts the portion of drug-specific articles that tie use to some sort of bizarre, deviant, antisocial, problematic or otherwise stigmatized behavior. Of all articles related to bath salts, 32.12 % referenced some sort of deviant or bizarre behavior. One in five articles about *Salvia divinorum* referenced deviant or bizarre behavior while far fewer did so for synthetic cannabinoids (13.58 %) and for purple drank (6.54 %).

Media Coverage and Legal Actions

To demonstrate the connection between public awareness of novel drug use and legislative action, Fig. 7 displays the media's coverage of synthetic cannabinoids and bath salts adjusted by the date of federal legislation. To be clear, the figure displays the difference between the date of article publication and the date in which the effective and permanent federal legislation was enacted. The peak number of articles appeared directly around the time (within 50 days) of federal legislation. A smaller peak is also apparent slightly over a year earlier with synthetic cannabinoid coverage peaking before bath salts. These peaks correspond with periods just before the initial restrictions on synthetic cannabinoids (March, 2011) and the temporary ban of synthetic cathinones and MDPV (August, 2011), respectively. Coverage of both substances has slowly decreased since the enactment of federal legislation. Readers should keep in mind that the rates of prevalence of self-reported use of each of these substances was largely stable leading up to and following the ban, suggesting that legal changes were more linked to changes in media reports of use than to actual changes in use (Khey et al., 2014).

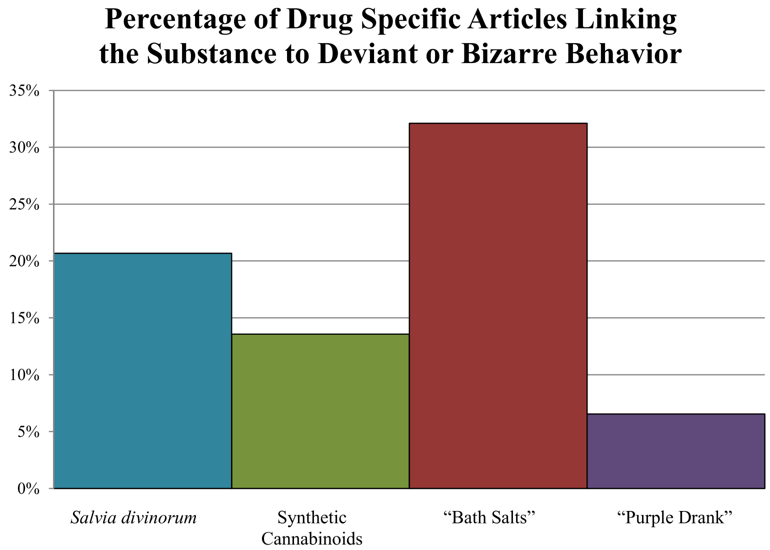

Fig. 6 Articles associating novel drug use with strange behavior

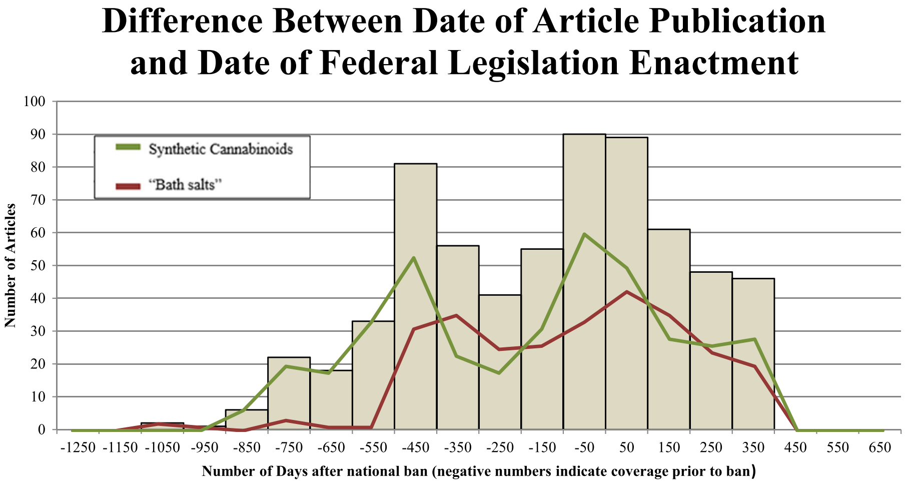

Fig. 7 Article publication rates adjusted by the date of national regulation specific to the substance

Discussion

This study's primary aim was to systematically examine the print media's coverage of novel psychoactive drugs. Coverage involving the novel drug *Salvia divinorum* linked use of the drug to youth, and to musicians and actors, while purple drank use has been more frequently linked to athletes, musicians, and black males. While coverage of *Salvia divinorum* largely remained flat despite a minor peak in mid-2007 and another in 2010, coverage of purple drank experienced three notable peaks: in mid-2010 when JaMarcus Russell was arrested, in mid-2012, and most recently in early to mid-2013 following rapper Lil' Wayne's high profile hospitalization for seizures potentially linked to his purple drank abuse. Coverage of synthetic cannabinoids dominated print media attention from late 2009 to early 2011 when bath salts gained prominence in its initial emergence as the new "legal high."

Print media portrayals of the use of bath salts were most often linked to deviant or highly bizarre behavior, more than any of the other NPDs studied. In the context of drug panics, the coverage of NPDs, particularly bath salts, fits well into the moral panic framework. NPD use was frequently associated with often marginalized groups including adolescents, emerging adults, and racial/ethnic minorities. Furthermore, NPD users have been portrayed as criminal, deviant, and even "zombies." For example, after the Miami incident involving the naked Rudy Eugene eating a homeless man's face, bath salts intoxication (even though this was inaccurate) soon became a synonym for bizarre behavior. Several incidents that had nothing to do with bath salts were associated with their use since the behavior was so bizarre that it did not fit conventional explanations. For example, despite no evidence connecting bath salts to Jett McBride, the 300 lb Tacoma man that picked up hitchhiker Caleb "Kai" McGillvary before driving his vehicle into pedestrians and pinning a Black utility worker against his truck while claiming that he was Jesus Christ and making racist comments, members of the media, including ESPN host Jim Rome, were quick to make this assumption (Khey et al., 2014). The charismatic interviews of Kai, who used a hatchet to stop McBride from hurting more people, led the story to draw national attention. The assumption of

McBride's substance use grew regardless of the lack of evidence that he was under the influence of bath salts (or any other drugs).

It follows then, that when comparing the difference between articles' dates of publication with the date of the enactment of the Federal Synthetic Drug Abuse Act of 2012, coverage of bath salts initiated and peaked much closer to the date of enactment than coverage of synthetic cannabinoids, peaking at around 200 days prior to the ban. It is likely that support for concerns and calls for the regulation of bath salts was quickly garnered following hyperbolic media depictions of "zombie attacks" and cannibalism. By contrast, coverage of synthetic cannabinoids reached a peak at almost a full year prior to the legislative ban. Print media coverage may have a differential impact in that some articles are more likely to be read, more memorable, and have a greater impact on readers. Sensationalistic headlines are more likely to be shared and remembered (León, 1997) especially now when "viral" news is rapidly spread throughout social media sites. Unfortunately, these stories may also be the ones most likely to grab legislators' and the public's attention- potentially obscuring harmful effects of other NPDs and unintended consequences.

The effect that the media has had on characterizing these drugs can be seen in recent prevention programs. NPD prevention programs have adopted hyperbolic language arguing that users of drugs such as bath salts are "zombies." For example, in December of 2011 the United States Navy began making posters that depicted a service member looking into a mirror with a zombie-like face looking back with the tagline, "It's not a fad… It's a nightmare." Following this theme in January of 2013, the Navy produced a dramatized video of a bath salts "trip" (Khey et al., 2014, p. 90). The video, set to "dubstep" music and shot from a first person perspective, depicts a sailor who receives bath salts in the mail, snorts the contents, vomits, steals food, hits his girlfriend, thinks his friends are monsters, and collapses as medical personnel are seen working on him. Likewise, the Department of Health of Washington DC, although focusing on synthetic cannabinoids, continues the association of NPDs with "zombies." The DC Metro ad campaign depicts decomposing teenagers with captions such as "No one wants to take a zombie to the prom" (as cited in Khey et al., 2014, p. 90). The Washington DC Department of Health defending these ads argue that, "Fake weed causes extreme anxiety, paranoia, panic attacks, alienation/disassociation, psychotic episodes, and hallucinations. This behavior has been labeled the 'zombie' effect" (as cited in Khey et al., 2014, p. 90).

Given the intense media focus on the most hyperbolic cases of NPD use- whether accurate or inaccurate- the effects of media coverage on subsequent policies laid out in the present study warrants further examination. Unfortunately, policymakers are likely to be more influenced by high profile events and media coverage than scientific and empirical evaluations of the effects of novel substances. Although regulating these substances may be warranted, it's imperative that legislators base policy decisions on facts and empiricism, rather than knee-jerk reactions to unsubstantiated media reports. Given the false, distorted, and exaggerated coverage of NPDs, evidence-based policymaking may take a backseat to emotionally driven policy decisions.

Often the decision to ban or regulate NPDs does not take into consideration unintended consequences. For example, the nature of innovation of NPDs means that new "legal highs," potentially even more dangerous than those regulated, may hit the market. This may create a dangerous situation in which new NPDs can pose greater harms particularly because the effects of these newer drugs are unknown. Overall, the harms of a moral panic- emotionally driven and hyperbolic- may result in harms greater than those posed by current NPDs themselves. That is, the labeling and further stigmatization of already marginalized groups may be exacerbated by media sensationalism. Further, those witnessing use and not noting the sensationalized effects depicted by the media and/or educational campaigns may grow to doubt all claims of danger and potential risks. Additionally, serious mental health issues may be overlooked by a hyper-intense focus on the effects of drugs in media coverage.

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